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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,358	09/11/2003	Masahide Sugiyama	427-83	5550
23117	7590	07/28/2006		
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER

1745

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,358

Applicant(s)

SUGIYAMA ET AL.

Examiner

Monique M. Wills

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,7-9 and 12-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,7-9 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

The request filed on February 7, 2006 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 10/659,358 is acceptable and a RCE has been established. An action on the RCE follows. The suspension of action has been considered and therefore, the declaration is considered a response to the Official Action of September 12, 2005 and Advisory Action mailed January 5, 2006.

Claim Rejections – 35 USC § 103

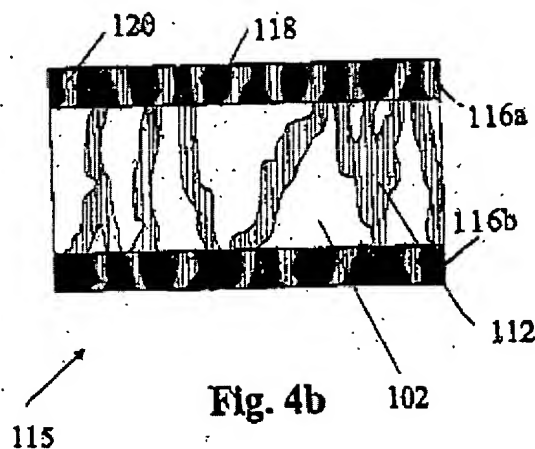
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-4, 7-9 & 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pekala et al. U.S. Pub 2002/0142214.

In re claim 1, Pekala teaches a separator for a lithium ion secondary battery, comprising: a polyolefin porous base material (paragraph 41); and a vinylidene fluoride resin porous layer (paragraph 40); wherein the vinylidene fluoride layer is provided on one surface of the porous base material. See Example 1. Further concerning claim 1, Pekala teaches an external pore surface (118) having an average pore size less than the interior pore layer (112). See Fig. 4b.



As to claim 2, the resin contains more than 50% vinylidene fluoride (par. 40). The limitation with respect to the vinylidene fluoride resin having a molecular weight of 150,000 to 500,000, is considered an inherent property of the resin set forth in the prior art, because Pekala teaches the same vinylidene fluoride employed by Applicant. Furthermore, "products of identical chemical

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composition can not have mutually exclusive properties.” A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658(Fed. Cir. 1990). In the instant case, Pekala’ s vinylidene fluoride has the instant MW, because the resin has an identical chemical structure to resin employed by Applicant. With respect to claim 3, the porous PVDF layer has a thickness of 1.3 to 4.1 microns. See Table II. The thickness of the PVDF layer is determined by subtracting the 21 micrometer thick UHMWPE web from the total thickness of the separator. With respect to claim 7, the porous layer has a weight of 6 g/m². See Table 1. As to claim 8, the thickness of the porous layer is 1.3 microns. See Table II. With respect to claim 9, the porous base material has a thickness of 30 microns (paragraph 41). As to claim 12, the vinylidene fluoride resin consists of a vinylidene fluoride homopolymer (paragraph 32). With respect to claims 13, the air permeability as measured by a Gurley air permeability tester is 1000 sec/100 ml or less (paragraph 61). In re claims 14 & 15, the separator is employed in a lithium ion secondary battery comprising: a positive electrode obtained by bonding a positive electrode active material to a positive electrode current collector; a negative electrode obtained by bonding a negative electrode active material to a

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negative electrode current collector; and an electrolytic solution containing lithium ions held in the separator (paragraph 69-70).

Although Pekala teaches a pore size of the external surface less than that of an interior in the porous layer, the reference does not expressly disclose an external surface pore size of 0.1 to 5microns and interior of 0.5 to 10 microns in the porous layer (claims 1 & 4).

However, it would have been an obvious to one of ordinary skill in the art at the time the instant invention was made to employ the instant pore sizes, since such a modification would have involved a mere change in size of the pores. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the instant porosity, since it has been held that g an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The skilled artisan recognizes that directly effects oxygen permeability.

Response to Arguments

Applicant's arguments with respect to claims 1-4, 7-9 & 12-15 have been considered but are moot in view of the new ground(s) of rejection. The 37 C.F.R. 1.132 Declaration has been considered, but is moot in view of the new ground(s) of rejection over Pekala et al. U.S. Pub 2002/0142214. Furthermore, although the declaration was not submitted as a response to the Official Office Action dated March 14, 2006, the declaration is not persuasive to overcome the obviousness rejection of Pekala et al. U.S. Pub 2002/0142214. The declaration is intended to show that simply having large pores in the interior does not produce sufficient air permeability, ionic conductivity, volume retention ratio and adhesion. The external surface must have an average pore size of 0.1 to 5 microns and an interior pore size of .5 to 10 microns in order to obtain the said superior results. This argument is not persuasive. The comparative example 6-3 shows an average pore interior of 0.4, which although outside of the claimed range, shows superior results with respect to air permeability, retention properties of the electrolytic solution and has significantly greater ionic conductivity than the invention. Therefore, it would be reasonable to expect that so long as interior surface is greater than the exterior, irrespective of applicant's claimed range, superior results can be achieved.

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Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

7/22/06

MARK RUTHKOSKY
PRIMARY EXAMINER
Mr. Ruthkosky 7.24.06